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Diagnostic Criteria in Sézary's Syndrome: A Multiparameter Study of Peripheral Blood Lymphocytes in 32 Patients with Erythroderma

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In order to define additional diagnostic criteria for the early diagnosis of Sézary's syndrome (SS), peripheral blood lymphocytes of 32 patients with erythroderma, including 8 patients with SS, 4 patients with erythrodermic mycosis fungoides, 14 patients with an erythroderma on the basis of atopic or chronic dermatitis, and 6 patients with erythrodermic psoriasis, were investigated by computer-assisted morphometry. The degree of nuclear indentation, expressed as the nuclear contour index (NCI), was measured on electron micrographs. The mean NCI and the percentages of cerebriform mononuclear cells (CMC), defined by a NCI ≥ 6.5, were calculated. In addition, the percentages of lymphocytes, T and B cells, and the distribution of T-cell subpopulations as defined by Fc-receptors (Tμ, Tγ) and monoclonal antibodies (OKT3, OKT4, OKT8, HLA-DR) were determined.

Statistical analysis showed as most discriminating parameters for the differentiation between SS and benign forms of erythroderma: high percentages of lymphocytes (50% or more), an expanded $OKT3^+$, $OKT4^+$ population with an OKT4/OKT8 ratio > 10, a mean NCI value ≥ 5.5, the presence of more than 20% CMC, as well as the presence of cells with a NCI ≥ 11.5. The total leukocyte and lymphocyte counts, as well as the percentages of B, T, Tμ, and Tγ cells had limited value for the early diagnosis of SS.

Sézary's syndrome (SS), first described in 1938 [1] is clinically characterized by a pruritic exfoliative or infiltrated erythroderma, lymphadenopathy, and the presence of atypical mononuclear cells (Sézary cells) in the peripheral blood [2,3]. At present most investigators regard SS as a neoplastic disease and part of the spectrum of cutaneous T-cell lymphomas (CTCL) [4,5]. In the early stage of the disease the clinical and histologic features are not diagnostic and differentiation from erythroderma on the basis of chronic dermatitis, atopic dermatitis, or psoriasis is difficult. In these patients with generally normal leukocyte counts the diagnosis rests mainly upon demonstration of Sézary cells in the peripheral blood. However, objective criteria for recognition of Sézary cells by light microscopy are lacking [6]. Moreover, ultrastructural studies have demonstrated the presence of cerebriform mononuclear cells (CMC), similar to those in SS, in the peripheral blood of patients with generalized benign dermatoses [7].

In order to define additional diagnostic criteria for the early diagnosis of SS, we have performed computer-assisted morphometry and marker studies of peripheral blood lymphocytes of 32 patients with erythroderma, including 8 patients with SS, 4 with erythrodermic mycosis fungoides (MF), and 20 patients with various benign forms of erythroderma.

MATERIALS AND METHODS

Patients

Heparinized venous blood was obtained from 32 patients with erythroderma including 8 patients with SS, 4 with erythrodermic MF, 14 with chronic dermatitis, and 6 with psoriasis. The peripheral blood from 10 healthy donors served as controls.

The diagnosis of SS was based on clinical and histologic criteria: erythroderma, lymphadenopathy, and the presence of hyperconvoluted lymphoid cells, compatible with Sézary cells, in the peripheral blood.

The patients with erythrodermic MF had shown the classical Alibert-Bazin type of MF for 3 months (see Table I, no. 9) to more than 4 years (nos. 10–12) before the erythroderma developed. At the time of study all patients had enlarged inguinal lymph nodes. Histologic examination showed dermatopathic lymphadenopathy in 2 patients (nos. 9 and 10), early involvement according to the criteria of Scheffer et al [8] in 1 patient (no. 11), and diffuse MF involvement in another patient (no. 12) with progressive leukemic disease, which proved to be fatal within 5 months. The clinical data of the patients with SS and MF at the time of study are shown in Table I.

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Abbreviations:
CMC: cerebriform mononuclear cells
CTCL: cutaneous T-cell lymphoma
FCS: fetal calf serum
MF: mycosis fungoides
NCI: nuclear contour index
PBS: phosphate-buffered saline
SS: Sézary's syndrome

From the 14 patients with erythroderma on the basis of chronic dermatitis, 7 patients (nos. 13–19) had atopic erythroderma. Histologically, most of these cases were characterized by a bandlike mononuclear infiltrate in the upper dermis, containing varying numbers of CMC. The peripheral blood smears of some of these patients demonstrated low numbers of atypical lymphoid cells. However, hyperconvoluted Sézary cells could not be identified. During the follow-up period which ranged from 12–48 months (24 months or more in 10 patients) none of these 14 patients developed SS or MF. At the time of study the patients with erythroderma on the basis of chronic dermatitis or psoriasis received no other than topical treatment with either emollients or steroids.

Lymphocyte Isolation

Heparinized peripheral blood was diluted with an equal volume of phosphate-buffered saline (PBS, pH 7.2). To remove monocytes, carbonyl iron particles were added and the mixture was incubated at 37°C for 30 min with occasional shaking. The monocyte-depleted mononuclear cells were then isolated by Ficoll-Isopaque ($P = 1.077$ g/cm^3) density-gradient centrifugation for 20 min at 1200 *g*. The cells present in the interphase were washed 3 times with PBS supplemented with 10% heat-inactivated fetal calf serum (FCS) and subsequently stored in liquid nitrogen in minimal essential medium supplemented with 10% FCS and 10% dimethyl sulfoxide until used for membrane marker or ultrastructural studies.

Membrane Marker Studies

T, Tμ, and Tγ lymphocytes were detected by means of a mixed rosette assay using neuraminidase-treated sheep erythrocytes and fluorescein-labeled ox erythrocytes coated with either rabbit IgM or IgG antibodies. The specificity, sensitivity, and experimental conditions have been described in detail elsewhere [9]. B lymphocytes were detected by the presence of membrane-bound immunoglobulins by means of a fluorescein isothiocyanate-labeled IgG fraction of a goat antihuman Fab serum (Nordig, Tilburg, The Netherlands) [10].

Monoclonal Antibodies

The monoclonal antibodies used in this study included OKT3, OKT4, OKT8 (Ortho Pharmaceuticals Corporation, Raritan New York) and anti-HLA-DR antiserum (produced by Becton Dickinson, Facs. Systems, Sunnyvale, California). The specificities of these monoclonal antibodies have previously been described: OKT3 is reactive with all peripheral T cells and mature thymocytes [11], whereas OKT4 and OKT8 define an inducer/helper and cytotoxic/suppressor T-cell subset, respectively [12,13].

Anti-HLA-DR antiserum reacts with Ia-like antigens present on peripheral B cells, monocytes/macrophages, and activated T cells [14,15].

The percentages of cells reactive with these monoclonal antibodies were determined by means of an indirect immunofluorescence technique [16].

Ultrastructural Studies

Cell suspensions (2×10^6 cells) were fixed in a 2% cacodylate-buffered glutaraldehyde solution (pH 7.2) and embedded in Epon 812. Ultrathin sections were stained with uranyl acetate and lead citrate, and examined with the Siemens Elmiskop Ia. Morphometric analysis of the lymphoid cells was performed as described previously [17]. Briefly, from at least 75 lymphoid cells present on electron microscope photographs made of the cell suspensions, the nuclear perimeter and area were measured by means of a graphic tablet interfaced with a small minicomputer (PDP 10/11). From these parameters the nuclear contour index (NCI), which reflects the degree of nuclear indentation, was calculated in the following way: $\text{NCI} = \frac{\text{perimeter}}{\sqrt{\text{area}}}$. This parameter has a minimal value of $2\sqrt{\text{II}} = 3.54$ for a circular contour. In every patient the mean and highest NCI values as well as the percentage of CMC, which are morphologically defined as lymphoid cells with a NCI ≥ 6.5 [17] were determined.

Statistical Analysis

For statistical analysis Wilcoxon's two-sample test was used. As a level of significance $P < 0.05$ was adapted.

RESULTS

The total leukocyte and lymphocyte counts and the percentages of Sézary cells as observed in peripheral blood smears of the patients with SS and erythrodermic MF are shown in Table I. The percentages of lymphocytes, T and B cells, and T-cell subsets as defined by Fc receptors and monoclonal antibodies are shown in Table II.

Three patients with SS (nos. 1–3) and 1 patient with erythrodermic MF (no. 12) showed highly raised leukocyte and lymphocyte counts. However, the mean values in these groups were not significantly different from those of the benign groups. The mean percentage of lymphocytes in the patients with SS (53.9 ± 24.4) differed significantly from that in the patients with erythroderma on the basis of chronic dermatitis (18.7 ± 8.9; $p < 0.003$) and psoriasis (17.0 ± 11.4; $p < 0.02$).

Rosette Assays

The percentages of T cells, as defined by rosette formation with neuraminidase-treated sheep erythrocytes, were within normal limits in all patients studied, except for patients 3 and 12, who showed decreased values (10 and 50%, respectively). The mean percentage of Tμ cells in the SS group was considerably reduced and differed significantly from those in the 3 other groups, which showed normal values as compared to the healthy donor group. The mean percentages of Tγ cells were decreased in the patients with SS, chronic dermatitis, and psoriasis, but normal in the patients with erythrodermic MF. The mean Tγ value in the patients with SS (5.6 ± 2.8) was significantly lower than in the patients with erythrodermic MF (11.3 ± 1.7; $p < 0.02$).

Monoclonal Antibodies

With respect to the distribution of T-cell subsets, as defined by monoclonal antibodies, 7 of 8 patients with SS showed highly elevated percentages of cells reactive with OKT3 (pan-T-cell phenotype) and OKT4 (helper/inducer T-cell phenotype) antisera and strongly decreased percentages of OKT8$^+$ cells (cytotoxic/suppressor T cell phenotype), resulting in significantly increased T4/T8 ratios. However, in 1 patient with strongly reduced lymphocyte counts (no. 6), completely normal percentages were observed. Patients with erythrodermic MF had normal OKT3 and OKT4, but significantly reduced OKT8 values. The patients with atopic erythroderma tended to show increased OKT4 and decreased OKT8 values, resulting in slightly elevated T4/T8 ratios. In the other patients with erythroderma on the basis of chronic dermatitis and those with erythrodermic psoriasis, normal percentages of OKT3$^+$, OKT4$^+$, and OKT8$^+$ cells were observed. The percentages of cells reactive with anti-HLA-DR antiserum were found within normal limits in most patients studied.

Morphometric Analysis

All 4 groups of patients with erythroderma showed elevated mean NCI values, decreased percentages of cells with a NCI $<$ 5.0, and increased percentages of CMC (lymphoid cells with NCI $\geq$ 6.5), compared with the healthy donor group (Table III). The mean NCI value and the mean percentage of CMC were significantly higher in the patients with SS than in the patients with an erythroderma on the basis of chronic dermatitis or psoriasis. Moreover, lymphoid cells with a NCI $\geq$ 11.5 were observed in 5 of 8 patients with SS but not in patients with benign inflammatory dermatoses. The results in the SS group were apparently unrelated to the lymphocyte counts and the mode of treatment. The highly increased mean NCI value and the high percentage of CMC in 1 patient with leukemic MF (no. 12) were similar to those of the patients with SS. The 3 other patients with erythrodermic MF, however, showed only moderately increased mean NCI values and less than 20% CMC

TABLE I. *Clinical characteristics of patients with Sézary's syndrome (SS) and erythrodermic mycosis fungoides (MF)*

Patient	Sex	Age	Diagnosis	Leukocytes[a]	Lymphocytes[a]	Sézary cells[b] (%)	Lymph node histology	Treatment at time of study
1	M	50	SS	50.0	35.0	22	+	Leukopheresis
2	F	67	SS	28.0	23.0	63	+	None
3	M	56	SS	18.0	13.5	42	+	Topical steroids
4	M	70	SS	10.3	5.2	10	ND	Topical steroids
5	M	53	SS	6.8	1.6	33	+	Chlorambucil, prednisone
6	M	68	SS	6.6	0.8	30	+	Chlorambucil, prednisone
7	F	67	SS	11.2	7.0	11	+	Chlorambucil, prednisone
8	M	71	SS	8.5	4.4	0[c]	+	None
9	M	65	MF	8.9	1.4	0	DL	Topical steroids
10	M	62	MF	7.5	1.1	0[c]	DL	Topical steroids, HN_2
11	F	64	MF	9.0	1.8	0[c]	+	Topical steroids, HN_2
12	M	69	MF	23.5	18.8	ND	+	Topical steroids

DL = dermopathic lymphadenopathy; + refers to involvement; ND = not done.
[a] Times 10^9/liter.
[b] Percentage of peripheral blood lymphocytes.
[c] In patients 8, 10, and 11 small numbers (<10%) of atypical lymphocytes were observed, but no hyperconvoluted Sézary cells.

before therapy, and normal values after initial therapy (data not shown). These results are similar to those observed in the patients with a benign form of erythroderma.

DISCUSSION

The results of the present study show that the most discriminating parameters for the differentiation between SS and benign forms of erythroderma are (1) an increased percentage of lymphocytes, (2) an expanded $OKT3^+$, $OKT4^+$ population, and (3) a strongly increased mean NCI value, a percentage of CMC > 20%, and the presence of cells with a NCI ≥ 11.5 (Table IV). The total leukocyte and lymphocyte counts as well as the percentages of B, T, Tμ, and Tγ cells had limited value for the early diagnosis of SS.

The percentages of lymphocytes were 50% or more in 6 of 8 patients with SS; 23% or less in 17 of 20 patients with a benign form of erythroderma; and 30, 33, and 44%, respectively, in the 3 other patients from the benign groups. The presence of more than 50% lymphocytes seems therefore highly indicative of the diagnosis of SS. The importance of a rising percentage of lymphocytes as criterion for the early diagnosis of SS has been mentioned previously [2].

All but 1 patient with SS showed highly elevated OKT3 and OKT4, and decreased OKT8 values, and significantly increased OKT4/OKT8 ratios, which is in accordance with the results of previous studies [18–21]. Patients with atopic erythroderma had slightly increased percentages of $OKT4^+$ cells and decreased percentages of $OKT8^+$ cells, compared with the healthy donor group, whereas patients with erythrodermic psoriasis showed completely normal values. Recent reports on the distribution of these T-cell subsets in atopic dermatitis [22] and psoriasis [21,23,24] have demonstrated similar results. The results of the present and other studies suggest that an OKT4/OKT8 ratio of 10 or more can be used as a reliable criterion for the diagnosis of SS.

Regarding the results of morphometric analysis, all patients with a benign form of erythroderma and 7 of 8 patients with SS were correctly classified when one or more of the following criteria were fulfilled: (1) a mean NCI value of 5.5 or more, (2) the presence of more than 20% CMC (lymphoid cells with a NCI ≥ 6.5), or (3) the presence of cells with a NCI ≥ 11.5, which to date have been observed only in patients with SS and MF, but not in patients with benign dermatoses [7]. Morphometric analysis was repeated approximately 3 months after initial therapy in 1 patient with SS (no. 8), 2 patients with atopic erythroderma (nos. 14 and 15), and 3 patients with erythrodermic psoriasis (nos. 28, 29, and 31). The patient with early SS, who at first did not meet the aforementioned morphometric criteria for SS, now showed a mean NCI value of 5.83, 33.6% CMC, and a highest NCI value of 14.3. In the 5 patients with atopic or psoriatic erythroderma, however, the mean NCI values (range: 4.09–4.60) and the percentages of CMC (range: 0–4.8%) had decreased to normal values. These results demonstrate that follow-up studies are essential for the correct diagnosis of SS in equivocal cases.

The mean percentage of Tμ cells was significantly lower in the patients with SS than in the patients with benign forms of erythroderma. However, the decrease in Tμ cells in the SS group showed considerable variation. The patients with SS showed significantly reduced percentages of Tγ cells, compared with the healthy donor group. However, strongly decreased Tγ values were also observed in patients with atopic erythroderma and some patients with erythrodermic psoriasis. Together with the conflicting data on the distribution of Tμ and Tγ cells in recent literature [25,26], these observations indicate that the distribution of these T-cell subsets cannot be used as a major differential diagnostic criterion.

The combined use of different investigations, as performed in the present study, adds to the diagnostic accuracy and seems worthwhile for the early diagnosis of SS. Patient no. 8 presented with a high percentage of lymphocytes and a significantly increased OKT4/OKT8 ratio, but at first did not meet the morphometric criteria for SS. Another patient, not included in the present study, presented in October 1982 with a noninfiltrated erythroderma. The clinical and histologic findings were not diagnostic. Lymphadenopathy was not found. Total and differential white blood cell counts as well as the distribution of $OKT3^+$, $OKT4^+$, and $OKT8^+$ cells were completely normal. However, because of the results of morphometric analysis (mean NCI value 6.0, 38% CMC, highest NCI value 13.6) the diagnosis of SS was suspected. In March 1983 this diagnosis was confirmed by histologic examination of an enlarged inguinal lymph node, and an OKT4/OKT8 ratio of more than 10.

In recent years the term erythrodermic CTCL for patients with SS has gained broad acceptance. However, this term does not permit differentiation between patients with SS and patients with MF who develop an erythroderma. The relationship between these two conditions, which is a matter of ongoing controversy, has recently been reviewed [27]. In the present study 4 patients with erythrodermic MF were investigated. Apart from 1 patient who showed high leukocyte and lymphocyte counts, large numbers of CMC, and a significantly decreased proportion of $OKT8^+$ cells, our patients with erythrodermic MF differed significantly from patients with SS because

TABLE II. *Percentages of lymphocyte subpopulations in the peripheral blood of 32 patients with erythroderma*

Patient	Diagnosis	Leuk[a]	Lymph	E_N	$T\mu$	$T\gamma$	OKT3	OKT4	OKT8	OKT4/OKT8 ratio	HLA-DR	SIg
1	Sézary's syndrome	50.0	70	80	2	1	89	73	2	36.5	19	0
2	Sézary's syndrome	28.0	83	71	36	7	94	95	3	31.7	5	4
3	Sézary's syndrome	18.0	75	10	–	–	87	85	1	85.0	7	11
4	Sézary's syndrome	10.3	50	ND	ND	ND	88	82	3	27.3	8	ND
5	Sézary's syndrome	6.8	24	80	49	7	90	92	5	18.4	6	5
6	Sézary's syndrome	6.6	14	73	32	8	69	54	20	2.7	10	12
7	Sézary's syndrome	11.2	64	ND	ND	ND	94	93	5	18.6	5	ND
8	Sézary's syndrome	8.5	51	76	17	5	96	93	3	31.0	2	4
	Mean	17.4	53.9	65.0	27.2	5.6	88.4	83.4	5.3	31.4	7.8	6.0
	SD	15.0	24.4	27.2	18.1	2.8	8.5	14.0	6.1	24.1	5.1	4.6
9	Mycosis fungoides	8.9	15	70	46	9	60	54	4	13.5	24	30
10	Mycosis fungoides	7.5	15	75	50	13	ND	ND	ND	ND	ND	ND
11	Mycosis fungoides	9.0	20	75	54	12	ND	ND	ND	ND	ND	13
12	Mycosis fungoides	23.5	80	50	51	11	56	42	8	5.2	9	10
	Mean	12.2	32.5	67.5	50.3	11.3	58.0	48.0	6.0	9.4	16.5	17.7
	SD	7.5	31.8	11.9	3.3	1.7	2.8	8.5	2.8	5.9	10.6	10.8
13	Atopic dermatitis	5.4	21	67	49	7	71	70	26	2.7	12	10
14	Atopic dermatitis	3.6	21	72	56	6	81	68	11	6.2	ND	11
15	Atopic dermatitis	10.9	12	73	35	7	ND	ND	ND	ND	ND	8
16	Atopic dermatitis	8.9	14	76	43	11	85	69	20	3.5	16	7
17	Atopic dermatitis	9.7	9	ND	ND	ND	67	55	11	5.0	8	ND
18	Atopic dermatitis	7.6	21	74	53	9	65	52	24	2.2	11	13
19	Atopic dermatitis	11.2	20	70	40	8	86	69	21	3.3	19	19
20	Chronic dermatitis	7.8	16	80	51	10	ND	ND	ND	ND	ND	18
21	Chronic dermatitis	5.0	44	70	52	6	ND	ND	ND	ND	ND	15
22	Chronic dermatitis	9.5	23	74	47	11	76	52	24	2.2	14	14
23	Chronic dermatitis	5.0	7	74	49	10	82	51	25	2.0	20	10
24	Chronic dermatitis	8.6	16	67	48	10	68	49	25	2.0	13	16
25	Chronic dermatitis	9.2	15	80	42	14	57	41	16	2.5	10	20
26	Chronic dermatitis	10.1	23	78	47	7	70	50	19	2.6	14	13
	Mean	8.0	18.7	73.5	47.1	8.9	73.5	56.9	20.2	3.1	13.7	14.2
	SD	2.4	8.9	4.3	5.8	2.4	9.3	10.2	5.5	1.4	3.8	3.8
27	Psoriasis	14.8	3	76	47	11	ND	ND	ND	ND	ND	12
28	Psoriasis	10.6	12	86	50	5	ND	ND	ND	ND	ND	15
29	Psoriasis	7.6	23	70	40	13	67	45	25	1.8	19	8
30	Psoriasis	9.3	14	85	50	7	72	68	23	3.0	ND	11
31	Psoriasis	5.9	33	68	42	6	78	60	32	1.9	11	14
32	Psoriasis	6.6	30	76	46	9	82	55	25	2.2	20	14
	Mean	9.1	19.2	76.8	45.8	8.5	74.8	57.0	26.3	2.2	16.7	12.3
	SD	3.3	11.5	7.4	4.1	3.1	6.6	9.6	3.9	0.5	4.9	2.6
	Healthy donors (n = 10)											
	Mean			72.2	46.9	12.5	76.0	51.3	25.1	2.1	12.3	12.4
	SD			4.7	5.6	1.7	6.0	6.3	3.4	0.4	2.2	5.4
Significant differences (p values)												
SS vs Mycosis fungoides		NS	NS	NS	0.03	0.01	0.04	0.05	NS	NS	NS	NS
SS vs Atopic/chronic derm		NS	0.002	NS	0.02	0.05	0.002	0.001	0.001	0.001	0.01	0.01
SS vs Psoriasis		NS	0.02	NS	0.04	NS	0.03	0.03	0.01	0.01	0.03	0.02

LEUK = leukocytes
LYMPH = lymphocytes
E_N: percentage of total lymphocytes forming rosettes with neuraminidase-treated sheep erythrocytes
$T\mu$: percentage of T lymphocytes with Fcμ receptor
$T\gamma$: percentage of T lymphocytes with Fcγ receptor
SIg: percentage of lymphocytes bearing surface Ig
ND: not done
NS: not significant
SD: standard deviation
[a] Times 10^9/liter.

of normal to low lymphocyte counts, an almost normal distribution of $T\mu$ and $T\gamma$ cells, and the absence of highly elevated OKT3 and OKT4 values. Moreover, the moderately increased mean NCI values and percentages of CMC before therapy, and the normal values after initial therapy contrast with the persistently high values in patients with SS. Whether these differences between SS and erythrodermic MF have any prognostic significance remains to be established. Until this question is settled it may be wise to avoid the term erythrodermic CTCL and to consider these two diseases separately [27].

The morphometric measurements were performed in the Department of Cytophotometry and Morphometry (Head: Dr. C. J. Cornelisse) of the Department of Pathology, University Hospital, Leiden.

TABLE III. *Morphometric analysis of peripheral blood lymphocytes of 32 patients with erythroderma*

Patient	Mean NCI value	Highest NCI value	NCI < 5.0 (%)	5.0 ≤ NCI < 6.5 (%)	NCI ≥ 6.5 (%)
Sézary's syndrome (SS)					
1	6.4	10.7	22	32	46
2	6.2	11.7	27	36	37
3	5.5	11.3	42	35	23
4	6.4	12.6	32	28	40
5	6.3	12.7	20	40	40
6	6.6	14.7	39	15	46
7	5.8	11.6	36	31	33
8	5.4	9.6	39	43	18
Mean	6.1	11.9	32.1	32.5	35.4
SD	0.4	1.5	8.3	8.6	10.2
Mycosis fungoides (MF)					
9	4.2	6.7	85	14	1
10	4.8	9.2	68	19	13
11	5.4	9.1	47	36	18
12	5.8	10.7	40	28	32
Mean	5.1	8.9	60.0	24.3	15.8
SD	0.7	1.7	20.5	9.7	12.8
Atopic/chronic dermatitis (AD/CD)					
13	4.5	7.8	77	19	4
14	4.8	8.8	70	22	8
15	5.4	10.3	45	37	18
16	5.1	11.1	56	30	14
17	4.4	7.6	79	17	4
18	4.5	7.7	73	23	4
19	5.0	7.7	59	17	14
20	4.4	6.7	79	16	5
21	ND	ND	ND	ND	ND
22	4.4	8.9	69	25	6
23	4.7	8.2	71	21	8
24	5.0	8.4	60	27	13
25	4.7	8.9	72	21	7
26	4.2	6.0	84	16	0
Mean	4.7	8.3	68.8	23.2	7.9
SD	0.3	1.4	11.0	6.1	5.3
Psoriasis					
27	5.2	9.4	50	42	8
28	5.3	10.6	48	40	12
29	4.5	7.3	80	15	5
30	4.8	7.8	61	26	13
31	5.1	9.3	57	27	16
32	4.9	8.6	62	29	9
Mean	5.0	8.8	59.7	29.8	10.5
SD	0.3	1.2	11.5	9.9	3.9
Healthy donors (n = 5)					
Mean	4.3	7.6	85.8	11.0	3.2
SD	0.1	0.9	4.8	3.7	2.2
Significant differences (p values)					
SS vs MF	0.02	0.02	0.01	NS	0.02
SS vs AD/CD	0.0002	0.0004	0.0002	0.02	0.0002
SS vs Psoriasis	0.002	0.003	0.002	NS	0.002

NCI = nuclear contour index; ND = not done; NS = not significant

TABLE IV. *Diagnostic criteria for Sézary's syndrome in the peripheral blood*

	Sézary's syndrome (n = 8)	Benign forms of erythroderma[a] (n = 20)	Erythrodermic mycosis fungoides (n = 4)
Lymphocytosis ≥ 50%	6/8	0/20	1/4
OKT4/OKT8 ratio > 10	7/8	0/20	1/4
Mean NCI ≥ 5.5	6/8	0/20	1/4
CMC > 20%	7/8	0/20	1/4
Cells with NCI ≥ 11.5	5/8	0/20	0/4

[a] Erythroderma on the basis of chronic dermatitis, atopic dermatitis, or psoriasis.

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Subsets of Epidermal Langerhans Cells as Defined by Lectin Binding Profiles*

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In this study we characterize the cell surface glycoconjugate moieties of strain 2 guinea pig epidermal Langerhans cells (LC) in single cell suspension by using a battery of 17 fluorescent lectins. All LC displayed binding sites for concanavalin A, succinylated concanavalin A, *Lens culinaris* agglutinin, *Pisum sativum* agglutinin, wheat germ agglutinin, succinylated wheat germ agglutinin, *Griffonia simplicifolia* agglutinin I, *Ricinus communis* agglutinin I, *Phaseolus vulgaris* E agglutinin, and *Phaseolus vulgaris* L agglutinin, but failed to bind *So-*

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Abbreviations:

anti-Ia.2,4: strain 13 anti-strain 2 serum
EC: epidermal cell(s)
FITC: fluorescein-isothiocyanate
FITC-SpA: FITC-labeled staphylococcal protein A
HRP: horseradish peroxidase
Ia: immune response-associated (antigens)
LC: Langerhans cell(s)
Lectins:
Con A: concanavalin A
DBA: *Dolichos biflorus* agglutinin
GS I-B_4: *Griffonia simplicifolia* I-B_4 isolectin
GSL I: *Griffonia simplicifolia* agglutinin I
HPA: *Helix pomatia* agglutinin
LCA: *Lens culinaris* agglutinin
PHA-E: *Phaseolus vulgaris* E agglutinin
PHA-L: *Phaseolus vulgaris* L agglutinin
PNA: peanut agglutinin
PSA: *Pisum sativum* agglutinin
RCA I: *Ricinus communis* agglutinin I
SBA: soybean agglutinin
SJA: *Sophorica japonica* agglutinin
succ. Con A: Succinylated Con A
succ. WGA: succinylated WGA
UEA I: *Ulex europaeus* agglutinin I
WGA: wheat germ agglutinin
PBS-azide: phosphate-buffered saline supplemented with 0.02% sodium azide
TRITC: tetramethylrhodamine-isothiocyanate